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THE NATURAL AGENTS OF VEGETATION.

(FROM THE FRENCH OF DU BREUIL.)

We understand by the natural agents of vegetation, those which facilitate, and often even entirely determine the different phenomena which take place in the life of plants. These agents are particularly the *soil*, *water*, the *atmosphere*, *light*, and *temperature*.

(We translate what relates to the following three, viz:—)

WATER, AIR, LIGHT.

Water—The nutritive agent, which, next to the soil itself, plays the most important part in the role of vegetation is, most assuredly water. We speak here only of its general action during vegetation.

Water is found in the soil, in the liquid state, and in the atmosphere, in the state of gaseous vapor.

If water was not in the ground in a liquid state, the latter would be wanting in the essential qualities of vegetation. It is only in a state of solution in water, or in a gaseous condition that the nutritive matters contained in the soil can enter into the organism of plants.

The office of liquid water is not limited to the solution of nutritious matter; it serves further under the name of sap to carry this nutriment into various parts of a tree, or to promote new growth.

This explains why certain lands, exposed to drought, although containing a fair proportion of good pasture, yield a vegetation less abundant and less vigorous than other lands not so rich in nutritive matter, but possessing a greater degree of moisture. It explains moreover that period of the cessation of vegetation observed towards the middle of the summer, at the time when soils exposed to drouth, are in part dried out by the vegetation and the evaporation going on since the spring time. At this period vegetation completely ceases, to recommence again with new vigor as soon as the first rains of autumn have moistened the ground. In view of this, you readily perceive the effects of a deficiency of water on vegetation. If the dryness of the soil is not very great, there only results less

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vigor in the vegetation, and a larger number of flowers for the following year. If the drouth is more intense, and particularly if of protracted duration, vegetation is suspended; there is no further development; the leaves fade, turn yellow, and fall. And in fine if it becomes excessive, the tree dries up and dies.

The only means to be employed to prevent the too great drying up of the soil, are waterings, coverings, and dressings with the hoe or plough.

An excess of water in the soil is not less injurious than drouth. In a soil in which moisture abounds, vegetation is very rapid; the wood is of bad quality, because it is always too soft; fruit trees produce fewer flowers, and in consequence less fruit; and this is of poor flavor, and keeps badly. But if the water becomes stagnant and covers the roots, the consequences are yet more serious. The roots deprived of a free contact with the air, can no longer fulfill their functions; they rot and the tree dies. Running water is productive of less evil than stagnant water, because the former contains always a certain amount of air.

Certain soils endure this excess of dryness or moisture better than others.

Water in the state of vapor in the atmosphere is no less useful to vegetation than that which the soil contains in a liquid shape. These watery vapors are absorbed by the leaves, which in this way come to the aid of the roots in restoring to the plant the losses incurred by evaporation. What seems most remarkable is, that this absorption of the watery vapor by the leaves, takes place most freely when the roots, occupying a soil too dry, with difficulty can perform their functions. By a wise provision of nature, it is precisely at the time when the plants have the greatest need of moisture that it is most abundantly dispensed in the atmosphere; and this is due to the action of the sun which raises the vapor from the surface of the earth,—thus the cause of the one producing the other,—both the drought and the moisture.

A too humid atmosphere is equally not wanting in difficulties in the way of vegetation. Thus, when the vapors, condensed and brought together by a falling temperature, occur in the form of fogs, and these last for any length of time during the spring, at the time of the flowering of the fruit trees, there results great damage. These fogs settle in little drops on the anthers of the stamens; particles of the pollen are broken off before it has the chance of being thrown upon the stigmas; the fecundation is rendered thereby null, and the flowers fade and fall.

Air.—The influence of the air upon the growth of plants is due to the oxygen and carbonic acid gases which enter into its composition. What we have said above on the subject of nutrition renders superfluous any remarks upon the action of the fluid atmosphere and of its elements.

Light.—This is no less indispensable to vegetation. We have seen that it is light which produces the phenomena of nutrition in plants. It is this which regulates the suction and the absorption by the roots. It is also by its agency that the decomposition of carbonic acid gas takes place through all the green parts of the plants; a decomposition by means of which the carbon becomes free and in a state of minute division, is easily assimilated by the plants, and tends to the growth of their several parts. It is also to this agent that is due the watery transpiration on the surface of the leaves; a phenomena which enables the sap of the roots to free itself from its superfluous water and to be transformed into cambium.

When you wish to preserve fresh cuttings from a plant, your first care is to place them in the dark, so as to lessen the transpiration of water. This is a fact well known to florists when they wish to preserve their flowers from wilting, and to gardeners when they wish to transport buds to a distance.

It is also the influence of light which regulates in the leaves the formation of

juices which give the plants their particular flavor and perfume.

In short, the green color, so abundantly spread among plants, and the particular colors which distinguish each of their parts, are likewise due to the light, by means of which the cells of the flowers, of the fruit, and of the leaves modify diversely the fluids they contain and produce their various hues of color. A single experiment will suffice to verify the facts we have above stated.

If you place a plant of any kind in a place perfectly dark, it will continue to grow, but the new growth will show in its tissue but a very small quantity of carbon, because the carbonic acid gas not being decomposed, the carbon could not be fixed there. The watery transpiration no longer taking place, these tissues become engorged with a large quantity of watery fluids. It then results that these parts remain always soft and herbaceous; besides they do not show the green color which characterizes tissues grown in the light, and they will remain a yellowish white. In short, always insipid, they will develop neither the perfume nor the flavor which distinguish the species to which they belong. This last phenomena is especially remarkable in the instance of the wild chicory, which green, is of an intolerable bitter, and which bleached in the dark and in that condition known as "The Capuchin's beard," becomes almost entirely tasteless. Plants developed under such circumstances show all these accidents to which the term *etiolation* is applied.—(See Webster's Dictionary; Translator). It will be gathered from these facts that the more trees are exposed to the light of day, the more compact and hard their wood will become, because simply they can assimilate a larger amount of carbon. In fact the wood of a tree isolated on a high mountain, will contain more carbon, will be more hardy and of longer duration than the wood of the same species and of the same size, but grown in a thick forest.

Among the different effects of light on vegetation, one of the most remarkable is that which it produces upon the direction of the stalks. For instance, place a growing plant in an apartment pierced with two lateral openings, the one giving access to the air without admitting the light, the other admitting the light with no passage for the air, and you will find all the branches direct themselves towards the second opening. The why and wherefore of this is as follows: When a leaf-bud (which has started) receives more light from one side than the other, the light side elaborates more completely the sap from the roots. There is on this side of the bud more carbon fixed in the tissues; these latter increase in length more gradually, because they are more speedily solidified, and besides the woody descending ducts which are formed in greater abundance at this point, also, arrest quicker the elongation of the ascending ducts. But the opposite side receiving a less quantity of cambium, and the descending ducts forming slower, the tissues elongate for a longer time. Now as the two sides of the same bud cannot separate themselves the one from the other, so as to grow each one in its own fashion, it follows necessarily that this bud must bend towards the side where it elongates the least, that is to say, the light side. This explains to us why it is, that the branches of a tree grown in espalier, which receive the light but from one side, tend constantly to direct themselves in front; why the trees on the verge of a forest incline their branches more to the outside than the interior; and in short why these same trees are, generally speaking, stouter, not so tall, and better stocked with branches than those of the interior of the forest, which show branches only near their summits, and never acquire a thickness proportioned to their height.

All these facts should be explained as happening from the influence of the light, and not as some have supposed, from that of the air, the free circulation of which, under these different circumstances, never acts in a contradictory manner.

ON GATEWAYS.

I HAVE often wondered why the professional writers on Landscape Gardening have so little to say of Gateways. Among the more pretentious authors of this class I find sketches of Gate-lodges, very charming in their details, many of them; but I find little or no mention of those modest gates which must hang at every man's door-yard —those unpretending swinging barriers, by which every country house-holder is shut off from the world, and by which he is joined to the world. They may be made to give a great deal of expression to a place; they have almost as much to do with it, in fact, as a man's mouth has to do with the expression of his face.

There was once a gate called "Beautiful," by which a lame man lay—we all remember that; there was once too a certain "wicket-gate" (with a great light shining somewhere beyond it) which Evangelist pointed out to Christian, whereby the pilgrim might enter upon the path to the Celestial City—we all remember that gate; and there was another gate, belonging to our days of roundabouts and satchels, by which we went out noon and morning, by which we returned noon and evening—on which we swung upon stolen occasions—a gate whereat we loitered with other philosophers, in other roundabouts and with other green satchels, and discussed problems of marbles, or base-ball, or of the weather—a gate through which led the path to the first home; well, I think everybody remembers such a gate. And thus it happens that the subject has a certain poetic and romantic interest which cannot be wholly ignored, and which I wonder that the landscapists have so indifferently treated.

Fancy, if you can, a rural home, without its gateway, lying all abroad upon a common! The great charm of privacy is gone utterly; and no device of shrubbery, or hedge, can make good the loss of some little wicket which will invite approach, and be a barrier against too easy familiarity. The creak of the gate hinge is a welcome to the visitor, and as he goes out the latch clicks an adieu.

But there are all sorts of gates, as there are all sorts of welcomes; there is, first, your inhospitable one, made mostly, I should say, of matched boards, with a row of pleasant iron spikes running along its top, and no architectural decorations of pilaster or panel can possibly remove its thoroughly inhospitable aspect. It belongs to stable-courts or jail-yards, but never to a home or to a garden.

Again, there are your ceremonious gates, of open-work indeed, but ponderous, and most times scrupulously closed; the very opening of them is a fatiguing ceremonial, and there is nothing like a lively welcome in the dull clang of their ponderous latches.

Next, there is your simple, unpretending, rural gate, giving promise of unpretending rural beauties within—homely in all its aspect, and giving foretaste of the best of homeliness within. And I make a wide distinction here between the simple rurality at which I have hinted, and that grotesqueness which is compassed by scores of crooked limbs and knots wrought into labyrinthine patterns, which puzzle the eye, more than they please. All crooked things are not necessarily charming, and the better kind of homeliness is measured by something besides mere roughnesses.

Lastly, there is your hospitable gate, with its little roofiet stretched over it, as if to invite the stranger-loiterer to partake at his will of that much of the hospitalities of the home. Even the passing beggar gathers his tattered garments under it in a sudden shower and blesses the shelter. And I introduce here a very homely specimen of this class of gates, which I remember to have sketched many years ago somewhere in County Kent, England.

Either my own pencilings were very bad, or else the engraver has failed to give the character of its rough roofiet; which, if I remember rightly, was but a thatch of broom, or of sedge. Yet who does not see written all over it—plain as it is—loiter if you like! Come in, if you like! And I love to think that some little maid, under it—in some by-gone year—said her good night to some parting Leander. Who shall laugh at this, that has ever been young? Are not the little maids, and the Leanders, always growing up about us? I always felt sure when I found such covered wickets that no curmudgeon lived within.

A second example of somewhat more orderly proportions, but identical in expression, I take from my note-book of travel, finding it credited to some little hamlet of Warwickshire; the posts and supporting arms being of unhewn elm, and the roof a neat thatch of wheat straw, which at the time of my visit was gray and mossy.

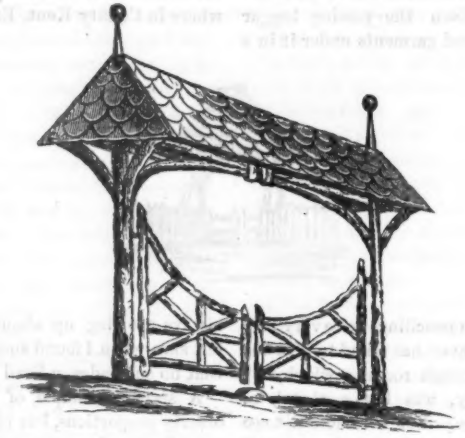
Has not somebody somewhere a cottage home, whose homeliness would be enforced, and beautified by such a cosy, covered wicket of thatch?

Thatch indeed, does not take on with us, and under our climate, that mellow mossiness which belongs to it in Devonshire. Our winds are too high and drying, and the sun too hot. Still, a thatch properly laid, will with us, keep its evenness for a great number of years; and for the benefit of those living within easy reach of the coast, I may say that nothing is better for this purpose than the sedge (so called) of the salt marshes.

In default of thatch, however, very pretty rural effects may be made by slabs (being log trimmings from the saw-mills), or oak

bark, (which is almost imperishable) or by scolloped shingles.

An example of the effect of these latter I venture to give:



In this case, all beneath the roof is of cedar with the bark undisturbed, while the posts above the roof are trimmed to a square, tapering and carrying a ball—the balls and the tapering extremities of the posts being painted white, and the roof a dark red. The effect is exceedingly good—though it mixes the rustic and more finished work in a way which the professional artists do not venture upon. But I have lived long enough to know that professional traditions in all the arts—landscape gardening and architecture among the rest—stand in the way of a great many beauties. Every country-place wants its special art-garniture (without respect to traditions) as much as every pretty face wants its special environment of colors and of laces. When, therefore, I hear a man declaim against white gates, or red gates, or rustic gates, or stone gates, *per se*, without reference to their position, or suggestive aims, I condemn him as an iron methodist, who apprehends no beauty by intuition, but only by force of precept.

Perhaps I have myself rather hastily condemned all close gates, as belonging to stable-courts and jail-yards. There are situations, certainly, where they are not only allowable (as upon back-entrances of gardens) but where they contribute eminently to the air of privacy which must mark every true home. And I am reminded in this connection, of a certain garden doorway, which I once saw near Keightley in Yorkshire; it opened upon a narrow lane in the rear of the suburban grounds to which it was attached, and showed such homely, resolute determination to work up into tasteful shape the stones abounding in the neighborhood, that I made a rough draft of it upon the spot.

This picturesque use of rock material is appreciated, and practised in many parts of Great Britain. Thus in the neighborhood of the slate quarries of North Wales, near Caernarvon, the refuse material from the ledges is laid up by the adjoining proprietors in snug fences, that appear at a little distance away, to be crowned with a regularly

castellated battlement. This effect is produced simply by alternating cubical and oblong fragments of slate rock upon the summit of the wall.

In Derbyshire, again, I have seen a kindred effect wrought by the tasteful disposition of the big boulders which are scattered pretty thickly over some of the high moor-lands of that county. In Cumberland and Westmoreland, indications of the same rural adaptiveness abound; of some of these I shall have occasion to speak more fully in future, and to give some striking illustrations.

Thus much has been suggested at present by my friend Lackland's request that I should supply for him the plan of a gate. I will see what I can do for him the coming month.

Edgewood, 2nd Aug., 1865.

OUR NATIVE CLIMBERS.

BY EDWARD S. RAND, JR.

THERE are indigenous to our woods and fields many very beautiful climbers or twining plants, which, in common with most native plants, have been overlooked in the passion for new exotics, and meet with unmerited neglect.

These plants impart the greatest charm to our woodland scenery, twining up the tall trees and robing them in green; converting dead boughs into a drapery of delicate foliage; hiding gnarled roots and fallen trunks, and by fantastic twining from bush to bush, contributing to the endless varieties of light and shade which make one of the chief beauties of our forest scenery. How bare our stone walls and rough fences would look deprived of the drapery of woodbine and blackberry; and what sweet odors would be lost to the air did not the wild grape fling its broad foliage alike over the barren rocks and the tallest trees.

There is nothing which so adds to the appearance of a country house as a judicious planting of climbing plants. Any one can call to mind the bare, desolate aspect of a cottage with no trees, shrubs, or vines around it, and the improvement made when walls and piazzas are draped with graceful foliage, and a few fine trees and shrubs judiciously planted.

The many objections urged against climbers have rather an apparent than real foundation. Unless allowed to grow too luxuriantly, they neither injure the buildings or make them damp, and the little dirt from dropping leaves and flowers is more than compensated for in grateful shade and beauty of bloom.

Suppose the wild brier which decks all the hedges in June; the clematis, conspicuous for fragrant white flowers and wavy seeds; the staff tree or wax work, so ornamental with fragrant blossoms in June and scarlet fruit in autumn; the grape, with fragrant flowers, ample foliage and purple fruit; the Virginia creeper flaming with the touch of autumnal frost, were transplanted to the farmer's house, allowed to clamber at will over doors and windows, or even to surmount the eaves, would they not give a charm to the house; remove the barren look; relieve the glaring paint or

weather-stained boards by a border of nature's own painting, and be a grateful shelter from the rays of the summer sun?

And to accomplish this much-to-be-desired end, it is not necessary for our farmers to spend their hard earned gains. The fine exotic climbers which are imported at great expense, though beautiful and desirable, are in many cases far inferior to those inhabiting our highways and hedges, and have the disadvantage of being often too tender to endure the severity of our winters. The expense of climbers need only be the time necessary to transplant them and prepare a place for their reception.

The trellis need not be of wire, nor does it require a carpenter's bill for its completion. A cedar tree with the branches cut off about a foot from the trunk and tall enough to allow it to stand a foot above the door after setting it two feet in the ground is needed, and the woods will supply it. Place one of these on each side of the door, setting them three to four feet out; arch a cross piece from top to top; slope others from this to the house and fill in the sides between the house and the posts with pieces of the boughs disposed in squares, diamonds or triangles according to fancy, and you have a very pretty rustic trellis. Leave the bark on; it adds to the effect. If in a few years it peels off and becomes ragged, you will then have the trellis covered with vines.

If however a smooth trellis is preferred remove the bark, trim off the knots and give a coating of red ochre or asphaltum varnish, which will preserve the wood and prevent the lodgement of insects. The portion of the post beneath the ground should be charred to prevent decay. For a window a smaller trellis on the same plan may be made, and for grass plats or the garden the posts alone may be used and they are very ornamental covered with vines. If an arched trellis is built over the gate and vines twined along the fence, they add greatly to the attraction of the place.

The soil required for most climbers is a common loam enriched with well rotted manure.

The species of climbers obtainable, vary in different localities, but there are very few spots where some may not be procured with but little trouble. Let each choose those which are most obtainable.

As a general rule transplant in the spring; the only argument in favor of fall planting is that at the latter season there is less pressing work.

And first, the Clematis "Traveller's Joy or Virgin's Bower" is one of our most hardy and beautiful climbers.

It is a large family with many species; some herbaceous, some climbers, but only one is indigenous to New England, *Clematis Virginica*, which grows commonly by river banks, margins of streams and low roadsides.

It is a very ornamental plant with light green trefoliate leaves, with clasping petioles which support the plant. The flowers are composed of thin white petals and are very fragrant. The fruit is very ornamental, being composed of long tails of seeds.

This is a rapid climber and a good plant, will soon cover a trellis. In any locality where it abounds hundreds of seedlings may be collected. The plant is fond of a damp soil but thrives in any good garden loam.

C. viorna is a fine species with pennate leaves and purple bell shaped flowers, a native of Pennsylvania and Ohio.

Atragene Americana is a beautiful plant nearly allied to clematis; native of dry rocky hills from Maine to Virginia. The leaves are ternate in whorls of four; the plant climbs, as the last, by its leaf stalks. The stem produces opposite axillary buds, from each of which in early spring two ternate leaves shoot forth, bearing a peduncle with a fine purple flower, two or three inches across, composed of four petals.

A pretty biennial climber is the Mountain fringe, (*Corydalis fungosa* or *Adlumea*

cirrhosa). The foliage is delicate, the flowers flesh colored and very ornamental.—Being a biennial it cannot be depended upon for permanent shade, but the plant sows itself when once introduced. It is too delicate for a large trellis, but climbing with other plants is very pretty.

One of our prettiest and most graceful plants is the moonseed, (*Menispermum Canadense*). The flowers are yellowish, white or green, and are succeeded by a black fruit covered with a frosty bloom. It is a rapid climber; the stems die down in winter, but shoot forth in early spring. As the plant is dicœcious, both sexes must be planted to obtain fruit.

There are two other indigenous plants of this family: *Cocculus Carolinus*, native of river banks in Illinois and Virginia, with greenish flowers and red fruit, and *Colycocarpum*, *Lyoni* or 'Cup seed,' native of Southern Kentucky, with greenish fruit and lobed cordate leaves; a rapid climber, growing to the tops of trees. These south of Pennsylvania might be worthy of cultivation.

It would be difficult to find a more beautiful climber than our wild grapes in their many species and varieties.

We regard the grape only as an ornamental climber, for other purposes, all our wild grapes and ninety-nine one hundredths of the "new hardy grapes" are perfectly worthless unless we propose making grape jelly, which is delicious, and for which the common fox grape is the best. But we say to all, plant grape vines for ornament; plant them for the beauty of the foliage, for the perfume of the flower; let them cover old walls, trees, fences, and rough places, and thus render unsightly objects beautiful. We have in this country six species of native grapes: of these, three, *Vitis Labrusca*, *V. æstivalis*, and *V. cordifolia*, are natives of our Northern States; the other three, *V. vulpina*, *V. bipennata*, and *V. indivisa*, are natives south of the Ohio.

V. Labrusca is our common wild grape with broad heart-shaped leaves, very white underneath, flowers and tendrils produced opposite the leaves, flowers dicœcious, greenish and very fragrant—berries large, purple amber or whitish, with a tough pulp. A rampant climber, often reaching the tops of the tallest trees. From this species the Isabella grape has sprung.

V. cordifolia (*vulpina* of some botanists). Leaves cut and toothed, green on both sides and thinner than the last. Berry small, black, with bloom, sour, ripening after the frost; flowers very fragrant; sometimes with the next called "Pigeon grape." A very pretty species for arbors.

V. æstivalis. Leaves downy when young, smooth when old, green above. Not as common as the last. Berries small, sweetish, ripening in October or earlier. A tall climber, and like the last, desirable for arbors and trellises.

The Virginia Creeper, Woodbine, or Five-leaved Ivy, (*Ampelopsis quinquefolia*) is one of our most common and ornamental climbers. It is easily distinguished by its five oblong lanceolate leaflets, and grows by road-sides and on low rich grounds. The flowers are small green and ornamental; the stems climb to a great height supported by tendrils; the berries are small, black, with a slight bloom, ripening in September or later. During the whole summer the plant presents a dense mass of dark-green shining foliage, but with the autumn frosts comes the greatest beauty, the foliage changing to all the tints of scarlet, crimson and purple. There is no more ornamental climber; it is perfectly hardy—a rapid grower, and very clean. It thrives well at the roots of trees, and for the last few years we have planted one hundred each spring to clothe the naked trunks of old pines which thus become pillars of green all summer, and columns of flame all the autumn.

Another hardy and ornamental vine, not uncommon on rich soil, is the "Roxbury Waxwork, Climbing Bitter-sweet, Staff Tree," &c. (*Celestrus scandens*). It is a woody vine with close twining stem and a tall

climber. The flowers are greenish, and of little beauty; the foliage is oblong ovate of showy green. The fruit is a yellow berry which, when ripe, bursts open, showing a bright scarlet covering enveloping the seeds. The foliage in autumn changes to golden yellow.

We next come to a class of well-known favorite climbers, the Honeysuckle (*Lonicera.*)

The plants are too well known to need description, and are more easily procured from nurserymen than from the woods. Plants from seed bloom the third year.

There are some native species which are little known, and which should receive more attention.

L. hirsuta is a large foliaged woody vine often climbing twenty feet high. Leaves not glaucous, hairy beneath, oval, dull colored, the uppermost united, the lower shortly peteoled. Flowers yellow in whorls—native of damp thickets.

L. sempervirens. Our common Trumpet Honeysuckle; flowers and berries red or yellow.

L. grata. A pretty species with smooth glaucous obovate leaves; flowers in axils of upper leaves, whitish purple turning yellow in fading, fragrant. Native of rocky woods, New York, and westward; common in cultivation,

L. flava. A species with smooth, pale glaucous leaves obovate or oval. Flowers in close whorls, light yellow—native of rocky banks, from New York westward and southward.

L. parviflora with greenish yellow flowers tinged with purple, grows about four feet high, but is not a climber.

To those who have not the Chinese Wistaria, (*W. sinensis*, often barbarously written "*Wisteria Chinensis*,") our woods furnish a beautiful species.

W. frutescens is a rapid and hardy climber, resembling the exotic species. The foliage is darker, the flowers deep purple, and the racemes of bloom very closely set; produced in June and July.

The Common Hop, (*Humulus lupolus*) is a pretty and useful vine. It grows spontaneously near the banks of streams. Root perennial, stem annual, in rich soil very strong. A plant of rapid growth. The attacks of the hop worm are easily prevented by syringing with whale oil soap when their presence is first perceived.

Solanum dulcamara, bitter sweet, or woody nightshade is a well known medicinal plant. The stem is woody, the flowers purple, succeeded by bright red oval berries, foliage dark green.

The plant in leaf, flower and fruit is very ornamental, and well suited for covering low trellises.

The other species, (*Solanum nigrum*) Deadly night-shade, is not a handsome plant. The flowers are white, the berries black. Both of these plants are introduced from Europe.

The nearly allied classes, Ipomea and Convolvulus have some pretty representatives among our indigenous climbers.

I. lacunosa is a white flowering species, native of Ohio and Illinois, with heart shaped pointed leaves.

I. pandurata commonly called "Man of the Earth," is one of our finest climbers. The root is tuberous, often as large as a man's leg. The annual climbing stems are often nearly an inch in diameter, and in a few weeks attain the height of twenty feet. The flowers are white with purple tube and very numerous. The shoots usually appear above the ground about the last of June, and the plants is very ornamental until killed by the frost.

C. arvensis is not uncommon in cultivated grounds and by road-sides near the coast. The flower is reddish white and very pretty, but the plant spreads rapidly and will soon overrun a garden.

C. (*Calystegia*) *sepium*, a fine species with large white, pink or red showy flowers—not uncommon by road sides. Root perennial, stem twining, ten feet high. Well adapted for trellises.

The well known Horse Briar, (*Smilax ro-*

tundifolia) is valuable if planted inside of exposed fences. It is a tall climber, often rendering thickets impenetrable. The leaves are ovate, shining; the stem green clothed with strong prickles; berries blue black. The foliage is very ornamental and the bright green stem is conspicuous in winter.

Dioscoria villosa; (but why "villosa," is a question) is a pretty slender climbing vine with greenish flowers, common in thickets, but not specially valuable as a climber.

In conclusion, we must include the rose, although not properly within the range of this article, as there is no climbing rose indigenous to the Eastern States.

The sweet briar, (*R. rubiginosa*) and the smaller variety, (*R. macrantha*) are both introduced from Europe, though often found growing wild. The only native climbing rose is the wild rose of the Prairies, (*R. setigera*) found from Ohio, westward and southward. From this, the fine cultivated varieties commonly known as "Prairie Roses," have been raised.

Our list of native climbers are far from being complete. We have only noticed a few of the best and most common, hoping our article may lead to a greater attention to "Home adornments," on which subject we may discourse more fully anon.

Glen Ridge, August, 1865.

THE HARVEST HOME.

BY G. P. DISOSWAY.

"The harvest! the harvest! once more we behold
Fair plenty array'd in its livery of gold;
We are spared to exult in its bounties again,
A year hath been granted, and shall we remain
Forgetful of HIM who hath lengthen'd our days?
Great God of the harvest, to Thee be the praise.
Thou hast prospered our toils, and hath given increase,
And established the land in abundance and peace."

N. Y. MIRROR.

It has ever been a season of rejoicing when the labors of the harvest field were over and the enriching crops safely gathered. The early Greeks presented offerings to Ceres, whilst their husbandmen shared in the public joys of the autumnal season. In ancient Rome, too, warlike as her citizens were, they venerated the plough, and their heroes followed its silent furrows. Even Cato wrote a treatise on husbandry, and from it, he says, "*spring our strongest men and bravest soldiers.*"

These devotions, doubtless, were borrowed from the Jewish feast of ingathering, and this was a time of great joy. No feast was attended with greater rejoicings than that of the *Tabernacle*, when the Israelites returned thanks for the fruit of the vine, and joyfully expressed the expectation of the MESSIAH. During this festival, they lived in tents, offering daily sacrifices to GOD, and carrying branches of palm, olive, citron, myrtle and willow, and frequently, repeated "Hosannah, save, I beseech Thee." While the trumpets sounded, they sang songs of thanksgiving, and their libation was the water drawn from the pool of Siloam.

The feast of the *Pentecost* was also called the feast of the harvest, and the day of first-fruits, when the Jews presented to Heaven in thanksgiving, the earliest gatherings of the harvest, in bread baked of raw corn. These offerings were called *first-fruits* because presented in the temple before any part of the crop was touched, and consisted of wheat, barley, grapes, figs, apricots, olives and dates. Such rejoicings continued a week. The first-fruits carried in procession by twenty-four persons, were preceded by the ox for sacrifice, with gilded horns and a crown of olives.

Nor were the poor forgotten—they never should be. When the triumphant armies should possess Canaan, by an especial ordinance of the Almighty, they were not to be neglected, as the olive was to be beaten

but *once*—the scattered grape was not to be gathered, and "*clean riddance*" was not to be made in the corn field. Its corners were to be unreaped and the forgotten sheaf left for the "poor and the stranger, the fatherless and the widow." This was not simply an act of mercy, but enjoined as an ordinance with peculiar solemnity: "I am the Lord thy God; I have given thee all, and make this request." How good is the Lord! At this season of fruits, grain and plants, let us not forget the needy and the destitute.

In harvest-time, as in sheep-shearing, we behold old and beautiful pictures. Abraham and Isaac and the early patriarchs have looked upon such scenes, for it has ever been a time of rejoicing. In Egypt, we see Joseph and his brethren, Abraham and Isaac, overlooking the harvest field from their eastern tents, David's household busy in the fields, and Ruth—the beautiful Ruth—"weeping amid the alien corn." What fine pictures for thought and mental delight! Enchanting as may have been the harvest fields of Egypt and Palestine, they cannot surpass in picturesque beauties, those in our own favored land. Here vast hills, dales and vallies wave with the golden grains. Reapers and gleaners all are busily engaged in gathering the enriching harvest. But the bringing home of the last load seems to be the grand picture of the harvest in old lands, and was the crowning thing.

In England, the farmer's daughter used to be selected for the *Harvest Queen* and dressed very becomingly for the occasion with a little round straw hat, wreathed in ears of corn and convolvuluses. She was always seated sideways on the leader, a fine chestnut colored horse, whose head was adorned with bunches of corn-flowers and blue ribbons. The driver's hat was decorated in the same way, and so were the teams ornamented, "*true blue*" being the favorite color with the rustics. The last shock was left standing in the field, from the topmost sheaves of which long streams of blue, yellow and crimson floated. This was the "*harvest sheaf*," the crown of the field, and the last received on the top of the load, it became the most conspicuous gay object. Onward now goes the wagon with the last load, towards the village, every cottage hailing with a hearty welcome the procession as it passes along.

The custom was once very general among European nations, though differing in its details. In Scotland, the last cut handful was thus honored, and he who succeeded in this respect was said to have "*won the kein*," or half-churned milk. The laborers followed the well laden stock cart from the field, crowned with ears of corn, and singing "*Harvest Home*." An old poet thus sings:

> "Some bless the cart, some kiss the sheaves,
> Some plant them up with oaken leaves,
> Some cross the thill-horse, some with great
> Devotion stroke the home-borne wheat."

But in this, as in other agricultural customs, a change has taken place; the old ceremonies and festive enjoyments which crowned the joy of harvest have been disappearing one by one. In our day there is not much regard for antiquities, and we are apt to pass into the opposite extreme.

The well-gathered fruits of the earth should ever be a cause of peculiar rejoicing, and thankfulness and the "Harvest Home" may well be sung in our favored land, when the husbandman returns "to bless his household," after the toils and cares of his fields. How merciful and gracious is the Almighty! "*While the earth remaineth, seed time and harvest, cold and heat, summer and winter, day and night shall not cease*," was the kind promise to the remnant who escaped the destruction of the deluge. From generation to generation since, the harvest field and its fruits have been preserved to man. The regular revolution of the seasons continue and the same kinds of corn, now waving in golden plenty over our fruitful land, once covered the fields of Egypt, Palestine, Greece, and Rome. *Now* as *then*, has the sickle reaped its ripened crops, the sheaves have been bound and garnered for the support of man and beast. So good, we again say, is the Lord!

The Clove, S. I., August, 1865.

CURIOSITIES OF VEGETATION.—No. III.

The fashionable world of both city and country, during the last year or two, has been invited to adorn and ornament itself with various articles in the shape of pins, ear-rings, bracelets, &c., manufactured from ivory. This substance is one of the curiosities of vegetation. Phytelephas Macrocarpa does not sound, even if you can pronounce it, very much like breastpin, but it is the botanical name, we believe, of the vegetable Ivory-Tree, which is a South American Palm. The fruit at first contains a clear insipid fluid, which afterwards becomes sweet and milky, and alters its taste as it hardens, till at length it becomes nearly as hard as ivory. Other trees of the same genus, in various countries, furnish a similar substance.

The Ficus Elastica, or Caoutchouc-Tree, is a native of South America and India. It grows to a considerable size, has shining pointed oval leaves, and small, inedible fruit. The milk which yields the Indian rubber is obtained from incisions made in the bark of the trunk and branches. This juice separates into a firm elastic substance, and a fœtid liquid. The juice yields about one-third its weight of caoutchouc.

The Gutta-Percha-Tree is widely scattered over the Indian Archipelago. It is from sixty to seventy feet in height, and from two to three feet in diameter on the average. The milky sap, which exudes from incisions made in the bark, is boiled, to drive off the watery particles; but, if a tree is only partially wounded, and a small quantity of juice extracted, it may be moulded in the hand, and will consolidate in a few minutes into the substance known as gutta percha.

The Bassia, or Butter-Tree, is found in various countries of the intertropical region. The Sheah-Tree of Africa resembles very nearly the American oak. The kernel of its fruit, when boiled, yields a white firm butter, as finely flavored as the best dairy butter. The Palo de Vaca, or Cow-Tree, of South America, grows to a great size. One measured by Sir R. Ker Porter was more than twenty feet in circumference. The trunk shot up branches to the height of sixty feet, and then sent out vast arms and luxuriant foliage. The whole height was fully one hundred feet. The leaves are leathery, and about ten inches long. When the trunk is pierced it yields an abundance of glutinous milk, tolerably thick, free from all acridity, and of an agreeable flavor.

Another milk tree is found in Demerara. On piercing the bark a copious stream of milk-like fluid flows out. It is thicker and richer than cow's milk, destitute of acridity, but apt to leave a slight feeling of clamminess on the lips.

The Urania Speciosa, a native of Madagascar, is thus described by Blackhouse in his "Visit to the Mauritius and South Africa":—"Clumps of these trees, composed of several stems rising from the same root, are scattered over the country in all directions. The trunks, or more properly root-stalks which are about three feet in circumference sometimes attain a height of thirty feet. But, whether of this elevation, or scarcely emerging above the ground, they support grand crests of leaves of about four feet long and one foot wide, but often torn into comb-like shreds. The head is of a fan-like form, and the flowers, which are not striking for their beauty, are white, and produced from large horizontal green sheaths. The foot-stalks of the leaves, which are somewhat shorter than the leaves themselves, yield a copious supply of fresh water, very grateful to the traveler, on having their margin cut away near the base.

"Probably the water may originate in the condensation of dew, and be collected and retained by the peculiar structure of the leaf. It has a slight taste of the tree, but is not disagreeable."

The Nepenthes Distillatoria, or Pitcher Plant, which is common in Ceylon and other Eastern countries, has a pitcher-shaped bag

attached to the foot-stalk of each leaf, near the base. This curious appendage has a neatly-fitting lid, moveable on a fibrous hinge. By the contraction of this fibre the lid is lifted up, and dew or rain collected in the pitcher, which saturates the vessel. Then the lid descends and closes in the fluid so as to prevent evaporation, and as soon as the plant has drained off this supply, the lid opens again.

As instances of motion in plants, we may mention the folding of some flowers when the sun is absent, and the opening of others when he has departed. The white Marigold closes its flowers when rain approaches, and the dwarf Celandrina shuts up its crimson corolla at about four o'clock every evening.

The Mimosa Pudica is so sensitive that it is said that at Rio Janeiro the falling of horses' feet on the road sets whole masses of this plant in motion. The genus Oxalis possesses the property, in a greater or less degree in different species, of folding their leaves when stimulated. The Sundews have the surface of their leaves covered with long hairs which secrete a viscous substance. If an insect settles upon the leaf it is impeded by this secretion, and, before it can escape, the hairs curve round and pin the victim to the leaf. The stamens of the Barberry, when touched with a pin, spring forward and make a bow to the stigma. The Oscillatoria—common in ditches, ponds and damp places—have animal-like movements when young; now twisting themselves into the shape of an S, then straightening themselves, twisting again, and so on. The Hedysarum Gyrans, of Bengal, has compound leaves; the end leaflet being larger and broader than the two side leaflets. The terminal leaflet moves under the influence of the sun's rays. The two lateral ones rise and fall alternately, so that when one is up the other is down. The movements of these side leaflets continue day and night, but the rapidity of these movements varies at different times.

There is an Australian plant which erects a column formed by the union of parts of its structure, on the application of heat. The Dionæa Muscipula, a native of Canada, has leaves with broad leaf-like stalks. These fleshy leaves are armed with strong sharp spines, three on the blade of each lobe of the leaf, and with a fringe of longer spines round their margins. When an insect comes in contact with the base of the central spines, the leaf closes, impaling the insect or entrapping it. The leaf remains shut up, having its spiny fringe firmly interlaced until the body of the insect has wasted away.

Some plants are luminous, and the Dictamnus Albus will inflame if a light is applied, so that the bush may be enveloped with flames without being consumed.

When plants are budding, heat is sensibly liberated. A piece of ice placed on a growing leaf-bud melts, when it would remain frozen in the open air; and it is found that the heat on the surface of growing plants is several degrees higher than the surrounding air.

THE MELON.

The Melon is the largest of all fruits, and yet it grows on the lowliest of fruit-bearing plants. It is a native of the milder regions of Asia, but was introduced into Europe before the time of Pliny, as that writer, when treating of gourds and cucumbers, after saying that "when the cucumber acquires a very considerable size it is known to us as the *pepo*" (supposed to be the pumpkin) adds—"only of late a cucumber of an entirely new shape has been produced in Campania, having just the form of the quince. The name given to this variety is *melo pepo*." This fruit, it is concluded, must have been the melon, which still bears the botanical name of *Melo cucurbita*. The melon had been known, also, to the Greeks who were accustomed to soak the seeds in

milk and honey previous to sowing them, and even to wrap them in rose leaves, believing that when thus cradled in sweetness the fruit to which they gave birth could not but be mild and fragrant. How early it was brought into Europe is not known with certainty, although it is said to have been cultivated in England in the time of Edward III. It is more probable, however, that it was introduced into England from Italy during the reign of Henry VIII.; for in 1526, Gerard, though he had not himself grown it, yet mentions having seen it at "the Queen's hothouse at St. James'," and also at Lord Sussex's house at Bermondsey, where he says, "from year to year there is great plenty, especially if the weather be anything temperate.

A native of warmer climates and provided by nature with a rind of such thickness that only extreme heat can penetrate to ripen the pulp within, when grown in England it needs, in addition to the artificial heat, as much as their Summer sunshine can supply of a more genial kind of warmth. It is sometimes grown from cuttings, which is a surer method of securing an unchanged perpetuation of the parent plant. But the usual mode of propagation is by seeds, which are tested, like witches of old, by being thrown into water, when, floating on the surface, ensures the condemnation of the melon-seed as certainly as it once did that of an old woman. Though melons are sometimes grown in the south of England under hand-glasses, like cucumbers, they cannot be generally reared there in the open air, since 65 is the least temperature at which the seeds will germinate, and from 75 to 80 is needed before the fruit can be ripened. A sheltered hotbed is therefore essential to their cultivation in that climate.

An annual plant, destined only to exist for the space of a few months, and yet to attain large dimensions in all its parts, the growth of the melon is very rapid, the newly-quickened seed soon sends forth tender, succulent shoots which, as they rapidly lengthen, develope numerous large alternately-disposed, lobed leaves, accompanied by spiral tendrils; and in the course of the third month after sowing, the pale, yellow flowers begin to unfold their soft, limp, five-cleft corollas. In the course of five or six weeks after the setting of the blossom, the ponderous product may be expected to have finished its rapid course and reached maturity, evidenced by its having attained its full size; in some sorts, by the gaining also of a yellowish tinge, but most certainly by the exhalation of a powerful but pleasant odor; though some kinds give likewise the unmistakable sign of the stalk cracking in a little circle close to the fruit. In general it is rather difficult to discriminate the exact stage of maturity, and only experience can enable any one to determine with certainty the precise time when a melon has reached, yet not passed, its perfection. When perfectly ripe, a melon should have no vacuity, a fact ascertainable by the sound given out on gently knocking the exterior, and when cut, the juice should not run in a stream, but only gently exude to gem the flesh with dew-like drops of moisture. Small melons are generally esteemed as better than the larger ones, as the cultivation which secures increase of size, tends also to impair flavor; and the bulky giants of the race, produced by excessive manuring, are therefore rejected by good judges, who desire rather to gratify the palate than to please the eye. The fruit should be cut from the vine in the morning, and the majority of the finer sorts should be eaten the day they are gathered, though if cut a day or two before they are ripe, they may be kept for a week in a cool dark room, and some sorts will even keep for weeks, under these conditions; for light has a great influence in facilitating the chemical changes on which the ripening process depends, and its deprivation, therefore, tends much to retard decay: they should, also, not be laid down, but suspended in nets, so as to avoid pressure on the surface. The careful and expensive methods

of culture required in England, for the production of melons, are not necessary in this country, where they are found in great perfection, anywhere south of latitude 41 or 42.

The fact of the male and female flowers of the order cucurbitæ growing apart from each other, though upon the same plant, causes great care to be necessary in order to preserve purity of breed. Gourds and cucumbers must be kept apart from the melon beds, to prevent their pollen from impregnating the pistilliferous melon-flowers and thus producing hybrid, and inferior kinds. It is thus, by mixing various kinds, that so many varieties have been created as to have now become almost innumerable. But there are certain broad distinctions of widely different varieties. As far as the present writer is informed, the choicest and most reliable of these now in cultivation, are the thick-skinned, soon perishing sort, grouped together under the general name of Cantaloupes, the Citron and Persian Melon, and the Water Melon, of which, again, there are several varieties.

The type of the first class was probably the original, old-fashioned Musk Melon, characterized by the thick network of grey lines over its surface, and by possessing comparatively little scent, varying in size from one to thirty or forty pounds in weight, but being so uncertain in quality that out of half a dozen specimens, but one, perhaps, would be found good. One of the first to supercede the old Musk Melon, and still one of the most esteemed throughout Europe, though reckoned in this country but second-rate, was the melon which claims in a more restricted sense to be the owner of the name of Cantaloupe, having been so called from a town of that name, situated about fifteen miles from Rome, and where this fruit has been cultivated ever since the Mithridatic war. Usually nearly round, and of middling size, its exterior always rough and irregular, varying much in color, sometimes orange mottled with green, and sometimes green and dark brown; while the flesh also assumes different tints, being in some nearly white, in others orange or pinkish.

The Citron, or green-fleshed melon, was brought into France by a Monk from Africa, in 1777, and has from thence spread into many countries, and given birth to numerous varieties. This is our favorite melon, in its several varieties, being one of the finest grown and yet peculiarly easy of culture, the climate of the middle and southern States suiting it better, probably, than any other melon.

The warm, dry climate and light genial soil of Long Island and New Jersey, are especially adapted to the culture of melons of any kind, but many other sorts require greater care than the green-fleshed favorite, without compensating for it by any superiority, and it therefore has few rivals in the New York and Philadelphia markets.

A very distinct variety, comparatively recently introduced, is the Persian Melon. The seeds of this melon were sent to England from Persia by the English Ambassador, in 1824, and were first planted in the gardens of the Horticultural Society, where they produced at once ten different varieties. The Persian melon is cultivated in this country, where it has attained great perfection and is much esteemed.

The plant which produces the Water melon is of a different species (*Melos citrullus*) and may be easily distinguished from the varieties of the *Melos cucurbita* by its deeply cut leaves, while the fruit itself shows an equally marked distinction in its smooth green surface. The Water Melon, as well as the Musk Melon, cannot be raised in England except artificially by the aid of the glass. Identified with the "melons" mentioned in Scripture, Water Melons are said to have originated in the Levant, but are found abundantly, and are probably indigenous, in India and China. They require very little care or attention, and immense fields of them are raised every year in the middle and Southern States.

A near, but very humble relative of the

aristocratic melon is our common pumpkin (*cucurbita pepo,*) a far hardier plant than the melon. In a rich soil, for it is a gross feeder, the pumpkin, or, as it was formerly, and we are told still ought to be called, the *pompion*, grows luxuriantly and ripens its fruit perfectly throughout the States. In its favorite situation, trailing over a manure heap, it is not only useful in assisting to decompose crude material, but veiling the unsightly mass with its large handsome leaves, it can turn an eyesore into almost an ornament. Remarkably rapid in its growth, when well supplied with water, it will form shoots forty or fifty feet long, so that a single plant is capable of extending, in a single season, over an eighth of an acre of ground. Clumsily bulky in its huge growth, yet offering but few charms to the taster, the pumpkin early furnished a comparison for persons whose heads were larger than their intellects, and which it would seem "the world would not willingly let die," since it has survived from the time of Tertullian to the present day, the initial letter only slightly hardening when we now apply to a thick-headed clown the appellation of a "*bumpkin.*"

It may be not inappropriately added that, in consideration of its rapid and extended growth, and the immense size to which its fruit attains, the Cucurbita Pepo is really "*some pumpkins.*"

TRUFFLES.

Messrs. Editors:—I find in an English periodical of several months back date some account of the Truffle and of the mode of procuring it which may afford your readers some interest, as it has me. As far as I know, this delicious esculent has not been discovered in this country; and we are indebted to foreign soils for what we prize as a great delicacy, and for which we are willing to pay at our best restaurants a large price. I know no reason why it may not be found growing in our own soil; and I should like to direct the attention of such of your readers as live in favorable localities for its production, to its characteristics, with a view to ascertain whether it may be found among us.

In the London market it is almost always sold as a product imported from France, and at a price from two to three dollars per pound. But more than three-quarters of the quantity thus sold, and that of the finest quality, is produced in English soil, and in reality supplied to the London markets by country dealers at a very low price.

Very little has hitherto been written about the Truffle; and we look in vain for any account of its habitat or methods of propagation in botanical works. In scientific treatises it is classed in the ranks of the esculent fungi, like the mushroom, and is named the "Tuber cibarium." "There are few of nature's productions," says our English authority, "so extraordinary as this family of the fungi; and in no other country than our own are there so many varieties of the class to be seen, with their curious shapes, their beautiful colors, and their fairy rings springing up like magic after a night's rain or a damp day." Unlike the mushroom, this strange fungus is propagated *under* the surface of the soil. They are found where the soil is black, loamy, mixed with flint, or is composed of chalk and clay. They grow close to the roots of large trees, and seem to be propagated by the partial decay of their long, fibrous roots, and nourished by the drippings from their branches. They are found in shrubberies, plantations and woods, and sometimes in banks and ditches, but always where trees abound, beneath them or at a little distance from their stems. They grow in rings of clusters of six or seven together round each tree. "Nor will they flourish beneath every kind of tree, but frequent the oak, the lime and cedar, and

appear especially to love the beech, since wherever that tree grows with the richest luxuriance the truffles are found in great abundance and of the best quality."

The usual season when Truffles are found in England is the month of September; but their appearance depends very much upon the state of the weather. In a dry season the truffle-hunter will not look for them before October or November, and until sufficient rain has fallen for their production. In favorable situations and in damp weather they will grow in a few days. They will increase from a quarter to half a pound in weight, and in rainy seasons they will sometimes reach a pound, while they measure from four to six inches in circumference.

The Truffle resembles, externally, a rugged knot of an old oak, or a piece of decayed wood. This is the large truffle. There is another kind well known to the truffler, though ignored in scientific accounts, called the red truffle on account of its color, and is of the size of a pea, and equal in flavor to the larger kind. This larger truffle, when examined through the microscope, is found grained with fibrous lines, and is of a firm, tough texture, white in color when young, and growing darker until its ripeness is shown by becoming entirely black.

As the Truffle grows *under ground*, there would be some difficulty in finding it were it not for the fact that, before it is cooked, it possesses a peculiar and unmistakable odor—so powerful and so peculiar that no imposition can be practiced in its commerce. The raw truffles when ripe and fit to eat possess this pungent and oppressive odor which will pervade the whole house; and they must be boiled or stewed when this odor will disappear.

This peculiar perfume is nearly imperceptible to the human senses when the fungus is growing beneath the soil; and for this reason the truffle-gatherer is assisted in the search for them by a peculiar breed of dogs that are trained for this purpose. "Clever little dogs they are, and trained from puppyhood to hunt the truffle out by the nose, and then to scratch it up with their long sharp claws. It is curious and interesting to watch the powers of nose possessed by these small dogs; how directly they perceive the odor of the hidden truffle; they rush to the place, straight as a dart, even at twenty yards distance."

Can you inform me, Messrs. Editors, who are supposed to know *all* about *every* thing, whether the Truffle grows in this country, and if not, whether it could be propagated by artificial means, like its congener the Mushroom?

HYBRIDIZING THE GLADIOLUS.

BY E. FERRAND, DETROIT, MICH., LATELY CHIEF OF CULTURE AT LEROY'S, ANGERS, FRANCE.

The Gladiolus, by its graceful standing, the beauty of its flowers and the varieties of its colors has become one of the plants *le plus à la mode*, and is well deserving of the attention it receives.

The facility with which it hybridizes has led the present gardeners to give it especial attention, and they obtain many splendid varieties. Of all the interesting labors of the gardener, none is so exciting as artificial fecundation; for those not acquainted with it cannot imagine what pleasure the successful raiser feels at the coming into bloom of a valuable new gain, and no plant more than the gladiolus will afford pleasure in that respect, as if you only have two plants of different shades planted by each other, even if you let the fecundation make itself without any help on your part, the seeds produced by either plants will give you plants of a character different from that of the parents. When a

plant is desired to be artistically fecundated all the stamens must be cut off as soon as the flowers open, by aid of fine scissors or little pincers, taking great care not to injure the pistil. Stamens are then cut from the plant you wish to ally to the former, and shaken finely over and upon the pistil of this one; the stamens of one flower are enough to fecundate all the flowers of the other plant, but to make it sure that the plant is fecundated the operation must be repeated every day for two or three days; it must be understood that the anthers which terminate the stamens must be open when the operation is made, so as to let the pollen drop off at the least shaking. Both plants may be fecundated by each others pollen, even if they do not flower precisely on the same day, for the spike of a gladiolus remains in bloom for two or three weeks, the flowers opening successively, beginning with the lower ones. Flowers that should not have been fecundated on account of their flowering too soon or after there was no more flowers on the other plant from which pollen was taken, must be cut off after they have done flowering, thus leaving on the plants those only that were operated on, so they will get more strength and perfect their seed.

Variety of colors is not the only object to be aimed at in hybridizing gladioli, but shape and largeness of flower must also be considered; and when a desired color is obtained, if there is something lacking in size and shape of the flower, a plant perfect in the latter must be selected and both plants worked together.

Gladioli offer a richness of varieties not found with any other plant, and none repay the amateur better, as rarely the seedlings are like the parents, and they never are inferior to them, and one may calculate to obtain, at least, one very superior plant out of every ten seedlings.

In my father's nurseries at Cognac, France, where gladioli are extensively grown and seedlings raised, the plants selected to be hybridized and to produce seeds are cultivated in a separate spot, the seed is labelled when collected, in order to know the parentage, and thus compare, and then is sown at once in cold frames, and it comes up before winter, when the small bulbs are taken up, and afterwards planted again early in spring in very rich compost, most of them bloom the same year; they go through a very severe examination as they blossom, none but those that are a real improvement over the parents are numbered and put by, waiting a second examination, which comes at the next flowering, when they are definitely classed and named. The refuse, that is to say, those which have nothing extra to favor them with entering the extra selected list are thrown aside among the mixed varieties and sold as such.

I must not forget to mention that artificial fecundation can be operated at any time of day, if a fine day, but, from 8 till 10 at morning is preferable. It must not be done in rainy or cold weather.

"THE ACTION OF METALLIC SALTS UPON THE GROWTH OF PLANTS."

BY J. P. DAKE, SALEM, OHIO.

Under the above heading I observed with great pleasure, in the August number of the "Horticulturist," an article from Mr. J. M. Merrick, Jr.

The experiments detailed, showing the physiological or toxical effects of various substances acting upon plants, has awakened a desire that they may be pushed yet further. I have long been a believer and advocate in the cause of direct experimentation. If nature abounds in truths and has her established laws governing all her domain, why should we be satisfied only occasionally, at long intervals, to *stumble*

upon them; or to learn of them only as she may by accident *suggest* them to us?

We should, in every department of Agriculture, as in Medicine, not simply be willing to know what nature teaches in the ordinary channels of every day life, but also what she teaches when we *interrogate* her; when, by all manner of experiments we question and cross-question her, as a skillful advocate does a witness, upon whose testimony hangs the life of his client.

The experiments of Mr. Merrick, so far as he informs us, were not made with any special reference to the diseases or Pathology of plants. Now we beg leave to suggest, as we most earnestly desire, that his trials with various Metallic Salts, as well as other toxical substances, be directed with regard to the *morbid conditions of plants.* For example,—we have various forms of blight and of mildew; we have the yellows, the gum, the black knot, &c. With these we have been battling for years, and yet must confess we have no effectual remedies against them. And here I must say, very briefly, that I do not attach the importance that many are inclined to grant to Microscopical researches or Chemical analyses, in looking for means wherewith to cure those destructive maladies. From present knowledge, I am persuaded that the "Sporidia," seen in the juices of trees, suffering with blight, are not the morbific cause, nor the essential disease to be treated. I view them as a *product* of disease, or if you please, an agency, commissioned simply to complete the dissolution of those fruits, leaves and trees, already doomed to destruction by an unseen, unweighed unmeasured influence operating upon the vital processes of those fruits, leaves and trees.

Hence, till proofs are afforded, in the shape of well authenticated facts, backing theoretical prescriptions, based upon microscopical studies of "Sporidia," I cannot yield my confidence to them.

And I have no more faith in efforts by chemical laws and means to regulate the vital functions of a plant, than I have of the human body. Chemical researches have taught us many curious and interesting facts in regard to the constituents and products of plants, as of the human body; yet by virtue of them simply, we can approach but the merest confines of vegetable, as of human disease.

What we need then, I repeat is, by diligent and careful experimentation, to ascertain how various toxical or medicinal substances affect a plant in removing it from a healthy condition.

When we have carefully observed and noted each departure, and every successive stage of each departure from a healthy standard in our plants, vines, trees, leaves, and fruits, both in nature and under the hand of toxical art, then may we begin to talk of the Pathology and the Therapeutics of the vegetable world, with some good prospect of practical as well as scientific results.

He who shall successfully devote sufficient time and means to these investigations, will be one of the earth's noblest benefactors.

REPORT ON GRAPES—ROT AND MILDEW—1865.

BY W. A. WOODWARD.

July 10th—The grape rot appears on the following varieties, some of them to a greater degree than I have ever seen, viz:—Alexander, Anna, Catawba, Concord, Cuyahoga, Diana, Hyde's Eliza, Lydia, Le Noir, Logan, Mary Ann, Mead's Seedling, Manhattan, Mottled, Northern Muscadine, Perkins, To-Kalon, Taylor's Bullitt.

July 25th—The mildew shows itself on the berries of Anna, Allen's Hybrid, Cuya-

hoga, Herbemont, Hyde's Eliza, Le Noir, Logan, Lydia, Mead's Seedling, To-Kalon, and Roger's Seedlings, Nos. 1, 4, 5, 9 & 22.

Aug. 10th—The grapes which show no disease up to the present time, are Clinton, Creveling, Delaware, Franklin, Garigues, Hartford Prolific, Isabella, Israella, Maxatawney, Miles, Rebecca, York Maderia, and Roger's No. 3.

Many reasons are assigned for these diseases. Two years since it was believed to be the excess of wet; last year it was the extreme dryness; this year being neither wet or dry, the cold nights and hot days are alleged to be the predisposing causes.

The latter cannot be the true reason, for we always have the hot days and cool nights at this season of the year, and should abandon the grape culture from Maine to Georgia, if it is true. We must look further back and consider; 1st, the attenuation of the vine during its early stages, propagated from feeble wood, and especially from green cuttings, to supply the excessive demand at the highest prices, and 2d, the temptations to convert weak plants into saleable ones by growing them in manure beds, and watered with chemical preparations to induce unnatural growth; 3d, unnatural (sometimes called scientific) pinching and heading-in of the vines during its growing season, continued from year to year. Experience shows that this treatment will develop disease in the 4th and 5th year, (if not before) and will ensure it ever after. The leaves are first affected, then the canes, then the fruit. Some fruit has the black rot only; others show first fungus on the fruit, and by the 7th year, both may be found on the same bunch. In all my examination I find the laterals pinched in and the bearing canes headed in.

The growing canes cut off at the top of the trellis, frequently from the highly philosophical reason that *it looks better*, and often for another equally sapient one, that it is *a favorite theory*, and has the sanction of many well informed grape culturists; and lastly, that *the experiment can only cost the life of the vine*, and it is very easy to put out another. The latter conclusion is the only scientific and the only true one,—sure as death.

The grapes named by me above under the head of July 10th and 25th, were all purchased plants, now seven or eight years old, and have been up to and including the last year, pinched and summer pruned *recundun artem*. Those named under the head of August 10th, with few exceptions, were from cuttings and strong buds cultivated by myself, and never pinched-in or mutilated while growing. The pruning has been generally done in November, after the leaves have fallen, and in no case have either of them been covered during the winter.

Why then, may I ask, should we make every grapevine fit its iron-bedstead (trellis)? Why must the Delaware and Rebecca be over stimulated to make them grow to the proper length; while the Concord and Isabella are to be headed off for overgrowth? Some of the new varieties show no disease as yet, because the time has not come for its development; but depend upon it with perfect reliance, that summer pinching and pruning will produce it in the healthiest plants. Let us then study the constitution and habits of the grapevine in our climate. Let us remember that our hot days and cool nights are essential to the perfection and ripening of the fruit; that if the foliage is taken off by pinching, it has the same effect as removing the leaves when further advanced; that more or less leaves are scorched by our August sun, and if they fall, the remaining ones are needed to protect the fruit, and that nature provides no more than are necessary for that purpose. Let us practice this natural and rational method taught by the growth of native vines in their native woods, and by cultivated ones on high trellises and tree tops, where we cannot easily get at them, and let us report results of our observation to the *Horticulturist*.

Vail's Gate, Orange Co., N. Y., Aug., 1865.

EDITOR'S TABLE.

To Contributors and Others.—Address all Communications, for the Editorial and publishing departments, to Geo. E. & F. W. Woodward, 37 Park Row, New York.

Back Volumes of the Horticulturist.—We can supply but a very small number of back volumes prior to 1864. Those we have can be had post-paid, bound in cloth, for $3 per volume, except for 1854, '55, '56, and 1857, which we will furnish bound and post-paid for $2 50 per volume. We may possibly be able to make up one entire set, twenty volumes, and two sets from 1854 to 1865 inclusive, twelve volumes.

We should be glad to buy volumes for 1853, 1858, 1859, 1860, 1861 and 1863, in exchange for new subscriptions.

Vol. 1864, bound and post-paid and subscription, 1865, $4 50.

Vol. 1864 and 1865, bound and post-paid and subscription, 1866, $6.

Kittatinny Blackberry. — We are indebted to E. Williams, Esq., of Mont Clair, N. J., for a box of this fruit, which is large, handsome, and though not quite ripe, fine. On page 271 of our volume for 1863, will be found an illustration which conveys a good idea of the size and form of the berry. It somewhat resembles the Dorchester, being longer and of less diameter than the New Rochelle. We do not know in what way this variety originated, but presume it is a seedling of some of our native kinds found growing wild. We regard it as an acquisition to the blackberry family.

Curtis' Prairie Mower.—We have been using, this season, in cutting our hay crop (50 tons) Curtis' Prairie Mower. This machine is operated on an entirely different principle from any other that we know of, being that known as the Cam motion; the machinery is of the simplest description, and the labor of the team easy to perform. The land cut over, and the character of the grass, was such as to test severely the merits of a mowing machine, and we believe that any machine that will do this work in the same clean and expeditious manner, and with such ease to team and driver, must be a good one. These machines are manufactured by the well-known firm of E. A. & G. R. Meneely, West Troy, New York, makers of all the finest church bells in the land, and the price is less than *one-half* of that asked for any other of the leading machines. We are of the opinion that it will cut in a handsome manner any field of grass that a man of good sense would deem it advisable to put a machine into: furthermore it embraces the elements of one of the best One-Horse Mowers yet to be introduced to the public.

The Pennsylvania Horticultural Society propose to hold a grand Horticultural Exhibition, in the City of Philadelphia, on the 27th, 28th and 29th of September next, under a large pavillion or tent, no hall in Philadelphia being large enough to accommodate the immense throngs that attend these displays. The Fruit Grower's Society of Eastern Pennsylvania are invited to meet with them, and their discussions will take place in the hall of the Pennsylvania Horticultural Society, corner of Broad and Walnut streets, and begin on the 26th September. Tables will be set apart in the grand display for their collection of fruits, which have generally been very large and interesting. This last society embraces all

the principal fruit growers of Pennsylvania, and their proceedings are published yearly.

We are indebted to J. E. Mitchell, Esq., Chairman of the Fruit Committee of the Pennsylvania Horticultural Society, for a copy of their proceedings and programme for the year 1865. We have long wished to be able to attend a horticultural display of this character, and if our closely occupied time will permit, will venture to run over and take some notes.

SECKEL PEARS.—We have received (Aug. 14) from Mr. A. D. Webb, of Bowling Green, Kentucky, a box of very handsome Kentucky grown Seckel Pears, which reached us in prime order, and have been the admiration of all who have seen them. The Seckel Pear is justly esteemed about the finest of this class of fruit, and if we could add, in this section, the size and color which Kentucky soil and climate can do, we should be very close to perfection. Such pears would command a very fancy price, just at this time, on Broadway, and indeed, the possession of some of these specimens was highly prized by several of our best connoisseurs. Raising such pears must be a very fascinating pursuit.

THE THIRTY-SIXTH ANNUAL FAIR of the American Institute, of the City of New York, will be held in the spacious Armory of the 22nd Regiment, on 14th Street, in the City of New York, from Tuesday, the 12th day of September, to Thursday, the 19th day of October next. Every effort is being made, with the confidence of the management, to present to the American people an Exhibition that will surpass anything heretofore held, in extent, variety and grandeur.

THE THIRTEENTH ANNUAL FAIR of the Indiana State Agricultural Society, will be held at Fort Wayne, Indiana, October 2d to 7th inclusive, and in connection with it the Fair of the Indiana State Pomological Society.

THE EFFECT OF STRIPPING A COUNTRY OF ITS TREES.—The summer heats are beginning to dry up the springs and brooks which were lately so full and noisy, and the attention of observing people is again turned to the fact of the diminution, year by year, of the quantity of water in our streams at certain seasons, in consequence of stripping the country of its trees, and converting the forests into pastures and tilled fields. Almost everywhere our rivulets and rivers show, by certain indications in their channels, that they once flowed towards the sea with a larger current than now. If we go on as we now do, we shall at length see many of our ancient water-courses as nearly obliterated as Addison found them in Italy, when he wrote:

> "Sometimes, misguided by the tuneful throng,
> I look for streams immortalized in song,
> That lost in silence and oblivion lie,
> Dumb are their fountains and their channels dry,
> Yet run forever, by the Muses' skill,
> And in the smooth description murmur still."

This denuding a country of its trees has made the rivers of Spain for the most part mere channels for the winter rains. The Guadalquiver, which some poet calls a "mighty river," enters the sea at Malaga without water enough to cover the loose black stones that pave its bed. The Holy Land now often misses the "latter rain," or receives it but sparingly; and the brook Kedron is a long dry ravine passing off to the eastward from Jerusalem, to descend between perpendicular walls beside the monastery of Mar Saba to the valley of the Jordan and the Dead Sea. Mr. Marsh, in his very instructive book entitled "Man and Nature," has collected a vast number of instances showing how, in the old world, the destruction of the forests has been followed by a general aridity of the country which they formerly overshadowed. Whether there are any examples of frequent rains restored to a country by planting groves and orchards, we cannot say—but we remember, when traveling at the West thirty-three years since, to have met with a gentleman from Kentucky who spoke

of an instance within his knowledge in which a perennial stream had made its appearance where at the early settlement of the region there was none. Kentucky, when its first colonists planted themselves within its limits, was a region in which extensive prairies, burnt over every year by the Indians, predominated.

More than forty years since a poet of our country, referring to the effect of stripping the soil of its trees, put these lines into the mouth of one of the aboriginal inhabitants:

"Before these fields were shorn and tilled,
Full to the brim our rivers flowed;
The melody of waters filled
The fresh and boundless wood;
And torrents dashed, and rivulets played,
And fountains spouted in the shade.

"Those grateful sounds are heard no more;
The springs are silent in the sun;
The rivers, by the blackened shore,
With lessening current run.
The realm our tribes are crushed to get
May be a barren desert yet."

The causes which operate to make the rains more frequent and the springs more regularly full in a well-wooded country are probably more than one. Under the trees of a forest a covering of fallen leaves is spread over the ground, by which the rains are absorbed and gradually given out to the springs and rivulets. The trees also take up large quantities of this moisture in the ground, and give it out to the air in the form of vapor, which afterwards condenses into clouds and falls in showers. All the snows, likewise, that fall in forests are more slowly melted and sink more gradually and certainly into the earth than when they fall on the open fields. On the other hand, the rains that fall in an unwooded region run off rapidly by the water courses, and that portion of them which should be reserved for a dry season is lost.

In some parts of the country, with a view of supplying the deficiency occasioned by the gradual diminution of water in the streams, they are beginning to resort to the old method of collecting the rains into reservoirs. In a part of Massachusetts contiguous to this State, the county of Berkshire, the owners of the paper mills, on what is called the Windsor Branch of the Housatonic, have already begun the construction of a basin on that stream, at a spot in Windsor, just above a series of cascades sometimes called Windsor Falls, and sometimes the Waconnah Falls. Here, the mouth of a small valley, through which the stream descends, is to be closed by a wall of massive masonry resting upon a stratum of the original rock. No mound of earth would answer the purpose, nor wall of stone resting upon earth, since, if that were by any possibility to give way before the water pressing against it, in a time of copious rain, a flood would be let loose which would carry destruction to the villages below. By this reservoir a hundred acres or more will be covered to a great depth; and as it is the centre of an extensive watershed, it will be filled in rainy weather in a very short time.

This example will probably be followed in other parts of the country by those who desire to secure a supply of water for their mills in such a season as we had last summer, when the want of water was very severely felt.—*N. Y. Evening Post.*

A Hint for the Ladies.—A few words about Flowers.—In the *London Society* for June there is an article on "Flowers and Foreign Flower Fashions," in which the writer describes the floral features of Paris, and gives these hints about flowers for the room:

"I must record the trellises that are covered with growing ivy, and that stand all summer-time in front of the empty hearth. In winter, I have seen them moved merely to the window. These long boxes have a trellis attached at the back and ends. A plant or two of ivy is enough to twine over the trellis; and then, through all the season, a succession of flowers is kept up, in a way that is most effective—and to me the most satisfactory. But then I never can bear to think that things have no roots when they look to be growing. A range

of hyacinth glasses, however, are in the box. The glasses are, of course, completely concealed by the moss; and in each of these said glasses is a tightly-bound bunch of something—it may be asparagus leaves, as I have described just now, or it may be Japan lilies, or still oftener gladioli. Either of these flowers is perfect for such uses. The tall white lily also is exquisite in this way; only, of course, for a drawing-room its perfume is far too powerful; though, when such things are used, as in Paris, to place at the side of altars, nothing can be more lovely than these tall and most pure white lilies.

"The blue Michaelmas daisy comes in well for these stands too; but as it is always well to describe one definite pattern that is known to answer, I made a special note of one both good and attainable. A common green-painted box, like our mignonette boxes (of course this should be lined with zinc, or at least made without holes, the former plan being desirable for the drawing room carpet), about eight inches deep, and say ten wide, a slight cane trellis, looking like rods for basket-work, merely stained dark green on the back and ends, coming about as high as an ordinary chimney-piece; ivy trained over the trellis, to cover it a good deal, but by no means thickly, simply to wreath about it, especially at the edges; then the only flowers in this really effective stand were alternate hyacinth-glasses of blue Michaelmas daisies and of scarlet gladioli, with, between them, some pots of fern or grass, or of asparagus leaves. The ivy itself, I was told, had, upon emergencies, been cut from the woods too, and brought in and put in glasses, and trained to look all natural. And, after all, it is well to know this for any quickly got-up decoration, or for a screen to shut off some unused doorway or ugly view at short notice.

"By-the by, too, at this season, all the trees in fresh leaf may be used just like holly in winter, by way of decoration, only by putting the cut end of the branch in a jar with water and charcoal, and then closing the mouth with a lump of the potter's clay. What can be more lovely than horse-chesnut or acacia?

"But, in a stand like that which I have described, observe the good management—the tall flowers, not over *recherché*, being filled up with shrubbery, sort of things in perfect keeping with their style.

"Bunches of holly, also, are remarkably good and effective in all such cases. In fact, for the use of holly one must go to France for a lesson. It comes in at any time, and is used as a brilliant flower—and, indeed, the bright leaves and red berries are such as few flowers can deaden.

"I have seen the boxes just described filled up entirely with the ivy-grown trellis, branches like small shrubs of holly, some tall and tapering, others low and spreading; and with some one white flower, generally the single, large-fringed Chinese primroses, these being, however, comparatively few—perhaps three pots only put in amidst the holly; and the effect was perfect—warm, and green, and graceful and *distingué*—for somehow the holly is very aristocratic, and adapts itself to all circumstances with most perfect ease and grace.

"Much green with a little color is a rule that has a wide reign; and also it is remarkable how rarely one sees one color, but crimson and buff roses, violet and pink, pale sea-green and rose-color, or any of these, with white. This seems the prevailing thing as much in dress as in flowers, and as much in rooms as anywhere. But then, Parisians do compose room, and toilet, and flowers, all as a sort of picture."

LETTUCE is one of the most valuable, yet one of the most neglected, garden vegetables grown by farmers. Many who pretend to grow it only obtain a tough, bitter weed. When properly grown its leaves are tender and palatable to almost every one, as soon as large enough to eat; and when grown into solid heads it is a most delicious food for men or animals. There is nothing that

can be grown for summer food for poultry at greater profit than a crop of lettuce. It thrives best in a light, rich soil; a soil that is rich from prior cultivation rather than from the immediate application of manure. If it be wanted quite early—and that seems desirable—the seeds must be sown in a hot-bed in March, and transplanted in April in a spot favorably protected from cold winds; and even here it may need occasional covering. It only requires proper cultivation after this to secure a crop. Allow sufficient room between the plants for them to head out without crowding each other, and an occasional evening watering if the weather be dry. Some of the market gardeners start the plants in autumn, and preserve them over winter in a cold frame, and transplant them to a hot frame in spring, and thus have large heads in market in April. It is a good way for a farmer to prepare a bed deep and rich in autumn, and sow the seed so late it will not vegetate, and cover the ground with coarse manure, to be removed early in spring, when the plants will get two or three weeks the start of seed sown after the frost is out of the earth. The following named varieties are the best: Early White Butter or Cabbage, the Early Curled Silesia, Early Tennis Ball or Rose, and the Imperial Head, or Sugar Loaf.—*Tribune.*

Cabbages—How Many per Acre.—The great cabbage growers about New York City generally calculate upon 10,000 heads per acre, allowing four superficial feet to each plant, which gives a surplus of 3,560 feet for missing plants. We suppose the crop may average 5 cents a head, giving $500 an acre, which, considering it is a second or third crop of the season, affords a pretty good return. Cabbages often follow peas, with which radishes or early lettuce has been grown; and ground from which an early crop of potatoes has been taken is often planted with late cabbages. The soil for this crop must be rich and manure used unsparingly. Hog manure is not approved in this vicinity; it is said that it produces "club footed cabbages." The gardeners prefer rotation for this crop, though we have known good cabbages grown upon the same spot a dozen years in succession. Near a city there is no doubt about the profitableness of the crop; and we believe it a valuable one for food for cattle and sheep. It increases the flow of milk, but it does not improve the quality. Irrigation is valuable where cabbages are grown, as they require a vast quantity of water as well as manure, with deep tillage and thorough cultivation. —*Tribune.*

The Cranberry.—The cranberry plant is a low, trailing shrub, with very small, smooth, unserrated leaves and bright rose-colored flowers, having a four-toothed calyx and a corolla deeply cleft into four segments, which curve backwards like those of the common nightshade; a flower to which, in shape and size, they bear much resemblance, though differing in many other respects. They grow in small clusters at the ends of the branches, one blossom on each long curved flower-stalk; and when, in due course, they are succeeded by the crimson berries drooping at the extremity of these slender bending stalks, like the head of an aquatic bird at the end of its arched neck, the reason becomes sufficiently apparent why our forefathers bestowed on them the name of *crane-berries.* The plant belongs to the natural order of *Ericaceæ.*

Death of Sir Joseph Paxton.—Joseph Paxton, known all over the civilized world as the architect of the London Crystal Palace of 1851, and the inventor of a system of building which has been imitated in numerous large cities, and finds its noblest culmination in the Sydenham Crystal Palace, has lately died in England, where for some time he has been in infirm health. He was for many years a landscape gardener for the Duke of Devonshire, father of the present Duke. Having under his charge the celebrated pleasure grounds at Chats-

worth, he built there, from iron and glass, a large house intended for the protection of tropical plants and trees. It is said that the idea was suggested to him by the structure of a leaf.

At this time the International Exhibition scheme was under way, and Paxton presented a plan for the building, which was adopted. From that time he became famous. He grew rich, was made a knight by the Queen, and was elected to the British Parliament. Having risen from the people he always remained their friend and was on the liberal side. He was sixty-one years old at the time of his death.—*Post.*

The first pink worthy of notice was raised in the year 1772, by Mr. James Major, who was then gardener to the Duchess of Lancaster; previous to which there were but four sorts, and those of very little note, being cultivated only for common border flowers. Mr. Major having saved some seed in 1771, he reared several plants, which, blooming the next season, one out of the number proved to be a double flower with laced petals, at which he was agreeably surprised, although he considered it as being only in embryo, and the prelude to some further advance, to be developed at some future period, which is now verified by the rapid strides this beautiful flower has made within a few years. Mr. Major also informed me that he made his discovery known to a professional gentleman, (a florist) who came to see it, and offered him the sum of ten guineas for the stock; but he declined the offer till he had consulted more of his floricultural friends, which having done, one gentleman told him he had done perfectly right in not accepting the offer, and advised him to increase the stock for the ensuing year, and then offer them for sale to the public. He took the hint, and accepted this advice of his friend, and sold it out to the public at 10*s.* 6*d.* a pair, under the name of Major's Duchess of Lancashire, the orders for which amounted to the sum of £80. One order to a single individual of forty pairs was delivered at the above price; and I think I may venture to say that no person has ever been able to make half that sum by any new pink since.—*Gardener's Weekly, Eng.*

Oyster Bay Asparagus—A Hint to Asparagus Growers.—So superior in size and tenderness is the asparagus grown at Oyster Bay, Long Island, that while the common small grass has been selling at wholesale from 15 to 30 cents per bunch the season through, Oyster Bay grass has ranged from 25 to 50 cents, most of it at 35 and 40 cents; and the demand is far greater than the supply. We have seen a little very fine asparagus raised in New Jersey; but the majority is quite inferior to that grown on the Island. Why this difference is the query of growers; and not a few persons have visited the asparagus fields of Oyster Bay to ascertain their modes of culture, but have succeeded no better in subsequent trials. We advise them to try this method and report the result to *The Tribune:* Every one has noticed in a field or bed of asparagus that some shoots are at least double the size of the others, and that those roots gave large shoots each year. Let them mark these shoots and save seed from them alone, and raise their own roots. Select the strongest growing of these seedlings to raise future seed from; and if there is not a marked improvement in a few years, then the law which holds in the animal creation, and which Mr. Hallett proved was equally efficacious in "breeding up" wheat, fails in asparagus. We are firm believers in the axiom that "like begets like."—*Tribune.*

Birds.—It is no argument for destroying the birds that they do not rid us entirely of the worse enemy. We know, by abundant evidence, that the small birds which most frequent our gardens and dwellings, do dispose of an infinite number of caterpillars, grubs, flies, and worms, in feeding their young as well as themselves. That there

are still more than they can dispose of is no wonder, considering the destruction of birds which has been going on now, faster and faster, more and more spitefully for years past. It should be remembered that the insect increase goes on at an accelerated rate after the natural check is once impaired. The escaped prey of one pair of birds will not grow only up to spoil a half dozen vegetables, or specimens of fruit, but will bring forth a progeny which will ruin scores or hundreds of plants, and leave enough heirs to run through the property of many more. The horticulturist had better endure the depredations of the birds than the wholesale mischief of the wire-worms, slugs, larvæ, moths, &c.

A Kitchen Garden of 800 Acres.—The *London Agricultural Gazette* gives a very interesting account of a tract of land between Plaistow and East Ham, on the east side of London, occupied as a tenant by Mr. W. Adams, whose father and grandfather before him had been in the same business on the same soil. "Thirty, fifty, even seventy tons of cabbages and greens in two or three successive crops within the year, twelve to twenty tons of carrots, eight to a dozen tons of potatoes, followed by ten to fourteen tons of onions, and these again succeeded by greens and cabbages, are yielded per acre. As soon as one crop is off another is put in; the only respite is in the winter time, before the onion crop, when it is left bare for a season's frost.—The only rest it ever gets is an occasional crop of wheat or peas." There is another side, however, to the picture. The owner has contracts for manure with many of the largest stables, breweries, and cow-houses in London, and it is sometimes applied in the enormous quantity of 80 tons per acre. The land "increases annually in fertility." The total annual payments on the 800 acres are about $100,000, (£20,000) including besides manures, $30,000 for labor, upwards of $25,000 for "rent, rates, tithes and taxes," $7,500 for commissions to salesmen, &c. What the sales amount to is not stated. Seventy horses are employed.

CORRESPONDENCE.

Tanglewood Farm, July 16, 1865.
Editors Horticulturist, New York.

I am a small farmer,—both in the extent of acres and in personel—and write you a few of my grievances, in hopes that you may spare time from, or at least add to your editorial labors the perusal of this note, and give me through your columns the benefit of your encouragement. Your journal has been of great value to me, and I feel myself already obligated to you for the many useful hints drawn therefrom.

It was the intention of the Supreme Ruler that I should become a devotee to the science of Horticulture, and her sister Agriculture; so my thoughts ran, on a certain morning last winter, and as with me to think was to act. I accordingly straightway became a devotee, and began to cast about me for the means of gratifying my taste. To be sure, there was my "back yard" at home, but that was insufficient, entirely to small.

As I was only junior partner in a not very large jobbing house, in one of our small cities, my ready means were rather limited, and as a natural consequence I cast my eyes to the "*West*" for a home which should combine the qualities requisite to aid me in a beginning, and yet not go beyond my purse in its cost.

My star—whether lucky or not, I have never discovered, as my lot seems to be about the same as other mortals—led me to a most beautiful prairie in Missouri, only a short distance from the aristocratic old city of St. Louis, in fact, so near that I can reach it in two hours by rail.

Having found *the* place, the next thing was to prepare to begin business.

Having consulted my wife, we came to the unanimous conclusion that we would buy none but the best articles, even though we bought less of them.

I had already supplied myself with quite a number of the standard works pertaining to the subject, and had slightly read them all, and thoroughly a few.

I bought a pair of Horses—of a dealer—and a fine Durham cow,—with a pedigree as long as the moral law—and started for our new home.

Arrived there, the first discovery of importance was, that *our cow was dry;* the wiseacres,—they're always ready—said 'twas just what was to be expected, that "*them ere blood ceouws want no 'count, no how,*" and that I'd "*better sell her fur beef.*"

What, sell an animal for such purposes, in whose veins coursed the blood of many generations, whose ancesters were the noblest where all were noble? No; I could not hear to that, but my wife said that "baby must have milk to drink;" so another cow, and better, I was assured, was bought. She had a calf, and the milk which was shown me by the honest German women, was very rich, and in good quantity. I still had faith in my Durham, and by continually "stripping" at her, she again yielded her usual allowance of milk, —about a gallon per diem—but beyond that she would not go.

I next discovered that my horses were baulky, and that my harness was entirely too light for the work. My plowing could not stop, so I was obliged to hire one of my neighbors to do it for me, much to the merriment of the balance of them, I suppose.

I went next and bought an "old mare," that was recommended as being *very steady*, so she was; she would work tolerably well for a half day, and then "give out." She was then literally steady,—in her tracks—for she could hardly be induced to move, even to go to the stable.

I will not burden you with the recital of the trouble with servants, and how my oats did not yield as much by 15 bushels per acre as my neighbors, &c., &c.

I have (this spring) read the work, which, of all others I should have read first,—"Ten Acres Enough"—and literally made it as the author did, enough for the kind of business in which I was about to engage. We are now satisfied that we have attempted to do too much farming for the stock on hand (of knowledge and capital).

My original intention was, to devote my entire farm to fruit, or at least all but enough to raise feed on for *my stock*. I have been partly dissuaded from it this season, but will return to the original idea with renewed energy, and I hope an increased capital.

Sad to relate *all* the *early* apples in my orchard are *Gennetings*.

I am only showing you my commencing year, and how many discouragements an amateur is likely to meet with at first.

My Blackberries are now doing finely, (in fall bearing) and my Cherries did well; but my Raspberries, Currants and Gooseberries were an almost entire failure—from the neglect of my predecessor, I think, —to his disgrace be it said, he did not have a strawberry on the place, but those which grew wild in the fields. I have some of those under cultivation, and should they prove as good as they promised in their wild state, I'll send you a sample.

Notwithstanding all these discouragements, I am satisfied each day more and more, that my adopted profession is the one for me to follow, and hope that in another year I may be able to give you a better record.

Hoping that your valuable Journal will fire all with as true a love for the science as it has me, I am

Yours, respectfully,

CHAS. H.

Naylor's Store, St. Charles Co., Mo.

CALUMET, ILL., May 20, 1865.

Mr. A. S. FULLER, author of GRAPE CULTURIST.

Dear Sir,—A few days since, receiving

an earnest invitation from an amateur vineyardist in Northern Indiana, to visit his grounds, with a view of pointing out and correcting, or guarding against, if possible, the havoc some, to him unknown enemy, of the insect tribe—as he supposed—was making with his vines. I complied, and found a fine vineyard of two years old plants set out last spring,—a year ago now —had last fall been cut down to two buds, and received a judicious counter covering, but his borders settling during the winter had carried down with them his vines which were well rooted, and left a basin around the stem of each vine, say three to four feet in diameter. On filling this basin partially, the lower bud pushed from below the surface of the ground, and in almost every instance this shoot had been cut off by the common cut worm. The shoot of the upper bud being a little hardier from its exposure to sun and air, had, in many instances escaped; yet, on many of these to the height of six to twelve inches up the new shoot, the worm had ascended and continued his destructive work. I at once caused a thorough search in and around all the vines, and a hard crushing of the worm. In and immediately around many hills we destroyed upwards of fifty worms, and at once encased the vine with a hastily constructed box made in the shape of a triangle or V, of two pieces of inch boards one foot long and one foot wide for sides, and one strip of clapboard one foot long and six inches wide across the bottom of the front. These boards were all sharpened a little to settle in the ground an inch or so, and a piece of mosquito netting drawn over the remaining open space, the wide part of course opening to the south. This proves effective protection against the cut worm, and the insect enemies of the vine, like the flea beetle, which on these sandy lands, at this season, often visit it. This will now, I think, give the secondary or accessory buds a chance to push and preserve the life of the plant. New beginners are this spring troubled to a very great extent in their vineyards with this cut worm, my own grounds not exempt; but my long experience and ready means to deal with all enemies of this nature have rendered their efforts of but little injury. The trouble seems confined to sandy soils, and complaints have reached me from Southern Wisconsin, Michigan and Northern Indiana and Illinois. If you would draw attention to this through the columns of the Horticulturist, it would do much good. The extensive circulation of your valuable Culturist gives your name an authority which will make your suggestions heeded. Not knowing the name of the post-office where you have moved to in New Jersey, I send this to care of Messrs. Woodward. Make any use of this communication you see fit; your own experience will, no doubt, enable you to point out a more effectual remedy against this than I could.

With much respect, truly yours,

Jas. T. Durant.

On confining these worms in a glass jar, I find of all the leaves given them, that of the grape they most prefer and greedily devour. Every mail now brings me inquiring letters how to protect the writer's vines from the cut worm. Since your book made its appearance, vineyardists have very generally cut down their vines in the fall to two buds. The vineyards hereabouts being planted but recently, and are, of course, mostly of young vines. I have found the worm at 3 o'clock in the morning at work, not only cutting the stem, but devouring the leaf 18 inches above the ground.

J. T. D.

To J. M. Merick.

Grape seeds need cracking to make them come up quickly. In clearing land the wild grape comes up plentifully where brush have been burnt. This suggested the idea of cracking my grape seed; so I took some Delaware seed, tied them in a rag and buried them an inch or two for the winter. In the spring I broke the small end off so I could just see the sprout, planted them in

a small pot near the stove, kept them watered well, and in a week or two one after one was showing his crooked neck above the ground.

I hope, in a few years, you may see the great American Seedling, just as if one grape could be great when we have so many good ones already. Grape seedlings are equal to apple seedlings, and who expects to get anything in the apple line very much superior to what we have. We have a seedling grape in Ohio, which has probably the largest bunch and berry combined of any American seedling; still it lacks in quality, and I'll wager two cents that the Great Agriculturist Strawberry is not equal in flavor to Hooker or Burr's New Pine, only with those that have plants to sell at 75 cts. each.

There! a boy says, this minute, "I like the Catawba better than the Delaware; the Delaware is too sweet." We have lots of boys that like sour fruit as well as sweet. Some people say they like the Isabella better than the Catawba. I expect, according to the philosophers, (Draper, Spencer, Seward,) the public *taste* is becoming more and more *complex*, and no doubt we shall be ready for anything new in the grape line, and if not ready some of the learned Doctors can differentiate new ones.

Ohio, May 6th. A. J. M.

Editors of Horticulturist:

Dear Sirs,—In your August issue, I notice an article entitled, "More Neglected Flowers," which is calculated to mislead your readers. Your correspondent is right in considering *Corydalis aurea* a rare plant; but he then goes on to describe a different species, (*C. glauca*) and the whole description makes it evident he has never seen the plant of which he writes.

C. aurea is a low growing plant, never attaining the height of C. glauca. The whole flower is golden yellow, no "red, orange, or pink" about it. C. glauca is *not rare*, but a common inhabitant of dry, rocky hills; is by no means confined to "Roxbury, Mass.;" but may probably be found in every town in the State. The plant described by Mr. Merrick, is the same he exhibited at one of the weekly shows of the Massachusetts Horticultural Society, in May last, under the name of "Sephrosia Virginica," than which no plant can be more unlike.

As he has at last somewhat approximated to the true name of the plant, a helping hand may be of use to him.

The Indian Turnip is by no means uncommon in cultivation; we can name many gardens where it may be found.

The Side Saddle Flower (Sarracenia purpurea) is of easiest culture; transplants well, and is very ornamental as a parlor plant if set in a vase of wet moss; the leaves are freely produced in winter under this culture.

Calypso borealis can hardly be called a "neglected plant." It is our rarest native orchid, a plant so scarce that nature has not given cultivators an opportunity to neglect it. Not one botanist in a hundred has ever seen anything but a dry specimen.

Mr. Merrick has been singularly unfortunate in his choice of plants, and very careless in the *information* he imparts. The primary qualification for a teacher is to be familiar with the subject on which he writes. Harvard.

Bright Bank, Ulster Co.,
N. Y., July 12th, 1865.

Messrs. Editors,—In the fall of 1861, I prepared a border on a bank with a southern exposure. I removed sufficient soil, which was clay covered with sand in spots, underdrained it, and composed my soil 14 feet wide and 3 to 4 feet deep.

I made an upright trellis 6 feet high, then carried it horizontal 10 feet till it struck the bank. I then planted my vines alternately, Delawares and Dianas 4½ feet apart and 4 feet from the trellis. The second year I dug a trench to the trellis, and buried them the first week in June, when they were in blossom. The growth was very strong, and the Dianas I pruned and

trained over the horizontal trellis, and the Delawares on the Thomery system, occupying with the two arms the nine feet between the Dianas.

Last year I allowed them to bear moderately, and this year, as to quantity, I am permitting them to take their own course. As I walk under the Dianas, I never saw so beautiful a show of fruit, as the bunches hang down from the trellises. I was led to count them, and I found on one Diana vine 169 bunches; the largest bunches and largest berries that I ever saw of the Diana when full grown; and on the Delaware, immediately under, there were 93 bunches. As I am a novice I do not know if this is very large or not, but I am quite certain they *show* more than I have before seen. There are 11 Dianas and 10 Delawares, and the vines will be 4 years from planting this fall. J. B. S.

East Rockport, Ohio, July 17, 1865.

Messrs. Geo. E. & F. W. Woodward,

Dear Sirs,—You probably suppose that one dealing in Patent-rights and manufacturing Self-Operating Gates, would have no taste or love for rural pursuits. I am at least an exception, and find that these pursuits are not only delightful and pleasant, but profitable. My inventive genius will some times come out and must be taken care of, especially when it is a "valuable invention."

I wish to call your attention to a very late cherry that I have on my place that is just getting ripe this, the 17th July.

The fruit is very large and smooth, and the curculio does not trouble it; color light red; flavor like the May Duke; the tree is a great bearer. Prof. J. P. Kirtland thinks it is not described and says: "It is very valuable on account of its lateness." It is at least ten days later than any in this vicinity, and I think it is a new kind.

When clearing off the fruit trees and digging up my yard preparatory to planting ornamental trees, I saved what I thought to be a morello sprout and set it out, which proves to be what I have described above. What do you think it is?

My Grapes never looked better.

Very respectfully,

E. Nicholson.

Bloomington, Ill, July 20, 1865.

Messrs. Woodward,

Horticulturist, 37 Park Row, N. Y.

How in the very midst of life we are in death! C. R. Dorman, Ex-President of the State Horticultural Society, and one of the earliest and best known of our Western Nurserymen, died yesterday the 19th, at 9 o'clock, A. M.

None more active and earnest and pure hearted and better beloved in all the craft, —we mourn his loss most bitterly. Ill but a few days; cut down so suddenly in the very prime of life and usefulness it is a great affliction. With his large family circle there will be thousands to join in grief and sympathy, for none of us see how to do without him.

In grief, F. K. Phoenix.

Hightstown, N. J., Aug. 21st, 1865.

Geo. E. & F. W. Woodward.

Gentlemen,—I send you three small bunches of Adirondac Grapes. The bunches are small, but I presume it is owing to bending down the vine in order to make all the layers I could. It ripens with me before the Hartford Prolific and of much better quality.

Truly yours, Isaac Pullen.

These grapes were ripe, sweet and tender to the centre when received, August 22nd.

Ed.

The Man without a Country.—This remarkable narrative, upon its original publication in the pages of the *Atlantic Monthly*, attracted more general attention and comment than any article printed for a long time. It is now republished in separate form, by general desire, and at a price (ten cents a copy,) which will give it universal circulation at this period.—Boston, Ticknor & Fields.